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09/994,829	11/28/2001	Yukinori Matsumoto	990191B	1134

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EXAMINER
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ART UNIT	PAPER NUMBER
2676	7

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *28 November 2001* .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *43-81 and 95-97* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *43-46,49-53,56-60 and 63-66* is/are rejected.

7) ☒ Claim(s) *47,48,54,55,61,62,67-81 and 95-97* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

       1. ☐ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
          application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)   4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .   6) ☐ Other: .

DETAILED ACTION

Claim Objections

1.   Claims 67-81, and 95-97 are objected to for the following reasons:

2.   Claim 67 recites the limitation "said object of image having the absolute value of difference greater than a threshold value" in lines 9-10 that is uncertain and indefinite because the claim has not previously defined that the absolute value of difference of the object image was greater than the threshold value. Is the Applicant trying to recite in the claim that a portion of the object image is extracted if the object image having the absolute value of difference is greater than a threshold value? Clarification is required.

3.   Claim 68, in lines 12-14, recites the limitation "a pixel having said absolute value of difference *greater than a predetermined times said standard deviation out of the pixels in said object image*". It is unclear as to what exactly the Applicant is trying to encompass, by the underlined limitation. Clarification is required.

4.   Claim 69, at lines 19-21, recites the limitation "said absolute values of difference *greater than a predetermined times said standard deviation out of said plurality of regions*". It is unclear as to what exactly the Applicant is trying to encompass, by the underlined limitation, for a standard deviation out of the plurality of regions has not been defined in the claim. Clarification is required.

5.   Claim 70, at lines 21-23, recites the limitation "said absolute value of difference *greater than a predetermined times said standard deviation out of said plurality of regions*". It is uncertain as to what exactly the Applicant is trying to encompass by the underlined limitation. Clarification is required.

6.   Claim 71 recites the same problem as claim 71, it is objected to for the same

reason. Clarification is required.

7.   The limitation at lines 9-10 in claim 72 is uncertain/indefinite for the claim has not

previously defined that the absolute value of difference is greater than the threshold

value. Is the Applicant trying to recite in the claim that a portion of the object image is

extracted if the object image having the absolute value of difference is greater than the

statistically determined threshold value? Clarification is required.

8.   Claim 73 recites the problem of claim 70, it is similarly objected to. Clarification is

required.

9.   Claims 74-81, and 95-97 recite the problems of claims 68-77, respectively, they

are objected to for the same reasons set forth for claims 68-75, respectively.

10.   In the aforementioned claims the Applicant is suggested to replace "times" by –

time--.

Claim Rejections - 35 USC § 103

11.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

12.   Claims 43-45, 49, 50-53, 56-59, 63 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hsu (US Pat. # 6151424) in view of Avinash (US Pat. # 5832134).

Considering claim 43, Hsu discloses an object extraction apparatus (*see figs. 8*

[a & b]) for extracting an object portion (*e.g., a segmented region, see fig. 7*) ... from an

image object obtained by shooting an object of interest (*e.g., original scene 1, see fig. 1*)

comprising:

Region segmentation means for dividing said object image into a plurality of regions

(*see col. 4, lines 8, lines 63-65*); and extraction means for identifying and extracting the

object image by a process of consolidating information of each pixel in the object image

each for the region (*see col. 13, line 19 through col. 14, line 52*). The Applicant should

duly note that the process of consolidating information of each pixel in the object image

is contemplated to denote the combination of image resolution of each segmented

object region prior to performing the object extraction means (*see col. 4, lines 18-40,*

particularly lines 36-40. See also col. 9, line 11 to col. 10, line 54 as characterizations

for the object image region pixel merging (or consolidating) schemes).

It is noted that although Hsu discloses substantial features of the invention, Hsu

lacks implicit recitation for removing an undesired portion from an object image obtained

by shooting an object of interest.

Avinash, in the same field of endeavor discloses removing an undesired portion

from an object image obtained by shooting an object of interest. See abstract and col.

2, lines 65-67.

Therefore, it would have been obvious to one of ordinary skilled in the art at the

time the invention was made to consider modifying the object extraction apparatus of

Hsu to include the removal of undesired portion from an object image obtained by

shooting an object of interest (e.g., via image acquisition (31, fig. 4) in the same

conventional manner as taught by Avinash, in order to produce enhanced images of

desired structures.

Re claim 44, Hsu teaches the equivalence for a process of consolidating

information of each pixel in the object image each for the region in the extraction means

is the process of averaging information of each pixel in the object image each for the

region. See also col. 9, line 11 to col. 10, line 54 as the characterizations for the object

image region pixel merging (or consolidating) schemes, wherein the averaging process

is performed by means of or during the GLOBAL segmentation of the pixel regions. For

to globally segmenting all the pixel regions is to adding and dividing (e.g., taking the

average) the pixels of each of the regions to resulting to a segmented whole image.

Re claim 45, the claimed "extraction means identifies and extracts the object

portion in the object image by a threshold process for information of each the pixel

consolidated each for the region" is equivalently met by the description at col. 9, lines

11-46.

Re claim 49, the claimed "information of each pixel in the object image is depth

information" is characterized by the depiction at col. 9, line 11 to col. 10, line 45,

wherein the tone difference and/or distance between the left and a right pixel region with

respect to a predetermined threshold is contemplated as the depth information of the

object image.

Claim 50 is a method performing the same function as apparatus claim 43 it is,

therefore, rejected under the same rationale as claim 43.

Claims 51 and 52 recite the same features as claims 44 and 45, respectively;

they are rejected for the same reasons.

Claim 56 is rejected for the same reason as claim 50.

Claim 57 is a computer program product performing the same method as

apparatus claim 43 it is, therefore, rejected for the same reasons and rationale set forth

for claim 43.

Claims 58-59 recite features equivalent to claims 44-45, respectively, they are,

therefore, similarly rejected.

Claim 63 is rejected for the same reason as claim 49.

13.   Claims 46, 53, 60 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Hsu (US Pat. # 6151424) in view of Avinash (US Pat. # 5832134) and further in

view of Nagaya (US Pat. # 5862508).

Regarding claim 46, Hsu and Avinash discloses most claimed features of the

invention as applied to claim 43 (above), but they fail to teach image difference

information obtained by a difference of process between a background image obtained

by shooting only a background of the object of interest and the object image.

Nagaya, in a similar art, teaches image difference information obtained by a

difference of process between a background image obtained by shooting only a

background of the object of interest and the object image. See col. 1, lines 60-65, col.

3, lines 49-62, and col. 13, lines 47-59.

Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to consider modifying the object extraction means of Hsu and Avinash to include the difference between a background image in the same conventional manner as taught by Nagaya, in order to realize the extraction of only the moving object by separating the background change region and the moving object region according to a second image. See Nagaya's col. 3, lines 44-47.

Claim 53 recites the same features as claim 47 it is, therefore, similarly rejected.

Claim 60 recites feature similar to claim 46, it is rejected for the same reason.

14.   Claims 64-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (US Pat. # 6151424) in view of Avinash (US Pat. # 5832134) and further in view of Murata (US Pat. # 6445833).

Considering claim 64, Hsu discloses an object extraction apparatus (see figs. 8 [a & b]) for extracting an object portion (e.g., a segmented region, see fig. 7) ... from an image object obtained by shooting an object of interest (e.g., original scene 1, see fig. 1) comprising:

Region segmentation means for dividing said object image into a plurality of regions (see col. 4, lines 8, lines 63-65); and extraction means for identifying and extracting the object image by a process of consolidating information of each pixel in the object image each for the region (see col. 13, line 19 through col. 14, line 52). The Applicant should duly note that the process of consolidating information of each pixel in the object image is contemplated to denote the combination of image resolution of each segmented

object region prior to performing the object extraction means (*see col. 4, lines 18-40, particularly lines 36-40. See also col. 9, line 11 to col. 10, line 54 as characterizations for the object image region pixel merging (or consolidating) schemes*).

It is noted that although Hsu discloses substantial features of the invention, Hsu lacks implicit recitation for removing an undesired portion from an object image obtained by shooting an object of interest.

Avinash, in the same field of endeavor discloses removing an undesired portion from an object image obtained by shooting an object of interest. See abstract and col. 2, lines 65-67.

However, Murata teaches calculating mean value of depth information of an image object for extraction. See col. 35, lines 55-66.

Accordingly, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to consider modifying the object extraction apparatus of Hsu and Avinash to include the calculation of mean value of depth information of an image object for extraction in the same conventional manner as taught by Murata, in order to correct depth information of all the object region. See Murata's col. 35, lines 55-66.

Claim 65 is a method performing the same function as claim 64; it is, therefore, rejected under the same rationale as claim 64.

Claim 66 is a computer program performing the same function as claim 64; it is, therefore, rejected under the same rationale as claim 64.

Allowable Subject Matter

15.   Claims 47-48, 54-55, 61-62 are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims, the prior art of record,

particularly, the Hsu, Avinash and Nagaya references, fail to teach the combined

features-including <u>a mean value obtaining means for obtaining a mean value of</u>

<u>absolute values of differences obtained by the difference process in each region, and</u>

<u>for calculating a mean value of pixels in each region of the object image, and a</u>

<u>threshold value processing means for comparing the mean value of the absolute values</u>

<u>of difference in the region with a predetermined value to extract a region having the</u>

<u>mean value of at least the predetermined value as the object portion</u>—in conjunction

with the other limitations in the claims and their intervening claims, as recited in claims

47-48, 54-55, 61-62.

Hsu teaches object image segmentation compare differences in pixel regions

with respect to a predetermined threshold to result to object portion extraction (see col.

9); Nagaya teaches calculation of difference information between background images

(see col. 3); and Murata teaches calculating mean value of depth information of an

image object for extraction (see col. 35, lines 55-66); however, the combination of Hsu,

Avinash and Nagaya fail to teach the underlined claimed features in the same

conventional manner as called for in the claims.

16.   Claims 67-81, and 95-97 would be allowable if they are rewritten to overcome the ambiguity issue set forth in the "Claim Objections" section in this office action, and the applied references.

Conclusion

8.   the prior art made of record and considered pertinent to the applicant's invention are as recited in the PTO-892 form.

Any response to this action should be mailed to:

Box

Commissioner of Patents and Trademarks

Washington, DC 20231

or faxed to:

(703) 308-9051, (for formal communications; please mark "EXPEDITED PROCEDURE")

Or:

(703) 308-5359 for informal or draft communications, please label "PROPOSED"

or   DRAFT")

Hand-held delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA , 6th floor (receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesner Sajous whose telephone number is (703) 308-5857. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Matthew Bella, can be reached at (703) 3086829. The fax phone number for this group is (703) 308-6606.

Wesley Sajous - WOS
8/21/03

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